

PROCEEDINGS  
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NOTES ON DIURNAL MIGRATIONS OF BATS.

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Very little seems to be known about the migrations of bats, either as to their extent, the manner in which they are performed, or the species which have the migratory habit. Indeed, it is only within comparatively recent years that any mention of this habit among bats has appeared in literature.

In 1888 Dr. C. Hart Merriam published a paper\* under the title "Do any Canadian Bats migrate? Evidence in the affirmative," in which he showed conclusively that two species of tree-dwelling bats—*Lasiurus cinereus* and *Lasionycteris noctivagans*—inhabiting the Canadian fauna of North America, perform regular migrations. The evidence presented consisted in records of the occurrence in winter of these species far to the southward of their breeding range and the occurrence of *Lasionycteris* in spring and fall at Mount Desert Rock, a small barren islet thirty miles off the coast of Maine. The only other detailed account of bat migration with which I am familiar is that given by Mr. G. S. Miller, Jr., in a paper published in "Science"† wherein he describes the appearance and disappearance of bats at Cape Cod, Massachusetts. The species noted by him were the Red Bat (*Lasiurus borealis*), the Hoary Bat (*Lasiurus cinereus*), and the Silver-haired Bat (*Lasionycteris noctivagans*), and their migrations were recorded as occurring in the evening (after sunset) on numerous dates between August 21 and September 13. The specimens observed were flying chiefly along the face of bluffs near the light-house. No evidence of a southward movement was discovered, but the fact that no bat could be found on the Cape

\* Trans. Royal Soc. Canada, V, Section IV, pp. 85-87.

† Science (N. S.) V, No. 118, pp. 541-543, April 2, 1897.

during the early part of the summer indicated that those seen in August and September were migrants.

The observation which I have to record, though very unsatisfactory in that the migrating species could not be identified, is so unusual in several respects that an account of it is presented in the hope that observations of a similar nature by others may be brought to light.

The morning of September 28, 1907, at Washington, D. C., was cloudy and mild, with the wind light northeast. Rain began to fall about 3 P. M. About 9 A. M. several bats were observed flying at a considerable height over my house in the suburb of Woodridge, a short distance from the Boys' Reform School. A few minutes later several more appeared, and the flight continued from 9 o'clock until about 10 o'clock, during which time over a hundred bats were noted, all flying leisurely in one direction with the wind, *i. e.* southwest. A single individual was seen at 10.45 A. M. They were not in flocks, but were flying singly, usually only four or five being in sight at one time. The manner of flight was quite unusual, for instead of the erratic zigzag flight commonly adopted by bats when seeking their food at dusk, the flight of those noted on this occasion was very steady, consisting chiefly of a sailing or drifting motion with occasional short flappings of the wings. Only a few of those observed indulged in the characteristic bat flight and these for only a few moments. The height of the bats above the ground was estimated as varying between 150 and 400 feet — certainly none were lower than 150 feet and a few were probably higher than 400 feet. At this distance they looked so much like huge butterflies that at first I could hardly believe they were bats, but after observing them a few minutes through a field glass, it became evident that they were indeed bats. At least three sizes and probably three or more species were represented, but even with the aid of the glass, no positive identifications could be made. Most of them were about the size of the Red Bat and very probably were either this species or the Silver-haired Bat. A few appeared larger than these species, and a few were decidedly smaller, belonging apparently either to the genera *Myotis* or *Pipistrellus*, though neither of these genera is as yet known to migrate, in North America.

Inquiry has been made of a number of naturalists of wide

field experience, and none of them has ever observed a similar flight of bats, in which the southward migration was so clearly evident.

Dr. Edgar A. Mearns, however, in his list of mammals of the Hudson Highlands\* has recorded his observation of diurnal flights of the Red Bat, but has given no details of the movement. He says, "I have never seen a Red Bat taken alive at that season [winter]. It is possible that the species migrates to the south in the autumn and returns in the spring. During the latter part of October and the first week of November I have seen great flights of them during the whole day. \* \* \* One year specimens are recorded on four days, on two days only males and on two only females."

Dr. Mearns tells me that in addition to these observations of the Red Bat in New York, he has seen a diurnal flight of Hoary Bats at Fort Snelling, Minnesota, but as his field notes are at present inaccessible, details of the flight can not now be given.

If diurnal migrations such as are recorded above are of regular occurrence, it seems remarkable that they have not been more frequently observed. Probably, however, such flights are the exception rather than the rule.

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\* Bull. Amer. Mus. Nat. Hist. X, 1898, p. 345.